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January 31, 1980

Director of Nuclear Reactor Regulation
Attention: Mr. D. L. Ziemann, Chief
Operating Reactors, Branch No. 2
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket No. 50-206
Information Regarding Evacuation Times
San Onofre Nuclear Generating Station
Unit 1

By letter dated November 29, 1979, addressed to All Power Reactor Licensees, the NRC Staff requested submittal of evacuation time estimates on an accelerated schedule. Enclosed herein is the requested information.

The enclosed evacuation times were generated by applying general assumptions based on a review of the evacuation zone physical circumstances. These evacuation times are preliminary and may be revised upon completion of the vigorous calculational effort underway at the present time.

In addition, due to the accelerated schedule, we have not obtained the requested comments of local officials. The enclosed estimates were, however, prepared with some input from local officials.

The more precise estimate of the times required to evacuate the areas within the Plume Exposure Emergency Planning Zone will be completed by the end of March, 1980. These will include input and comments by local officials. We will provide a copy of this report to you as soon as it is available.

J G Haynes

J. G. Haynes
Chief of Nuclear Engineering

Enclosures

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PRELIMINARY FINDINGS AND SECTOR EVACUATION TIME

At the present time we have completed the preliminary evacuation time estimates for populated areas within a 10-mile radius of San Onofre Nuclear Generating Station.

The study encompasses all population areas surrounding the generating station. These areas include the entire communities of San Clemente, Capistrano Beach, San Juan Capistrano, Dana Point and Ortega. Population figures and number of households within each major area are given below:

	1980	
	Population	Households
San Clemente	25,700	12,850
Capistrano Beach	4,750	2,250
San Juan Capistrano	23,950	9,600
Dana Point	5,250	2,750
Ortega	1,350	600

The Camp Pendleton and San Onofre Beach areas have not been examined in detail but previous analyses of the evacuation of these minor population areas have indicated significantly smaller evacuation times are required.

Population and roadway conditions for several periods during the week were studied to determine the "worst case" conditions (highest population and vehicle density) within the evacuation area. It was found that a week day evening peak hour period would represent the highest resident population in worst traffic conditions. The existing state and highway network in the vicinity has been studied and principle evacuation routes identified. These routes are listed below:

Street or Highway	Lanes
Interstate 5	8 divided (6 through city of San Clemente)
Note: 8 lanes through City of San Clemente by 1983.	
Pacific Coast Highway (State Route 1)	4 divided (undivided north of Crown Valley Road)
Camino Capistrano	4 undivided
Ortega Highway	2 undivided

The total evacuation time determined in this preliminary study includes (1) response time to evacuation notification and (2) travel times on evacuation routes beyond the 10-mile radius area. The roadway capacity and travel time assumptions are based upon conservative estimates of forced evacuation conditions. These assumptions include the following:

- Only outbound lanes are used.
- 90 percent of available automobiles in the evacuation areas are evacuated.
- Average vehicle speed -- 10 miles per hour.
- Maximum lane capacity:
    1. One freeway lane - 1,800 vehicles per hour
    2. Standard 4-lane highway, high side friction - 3,000 vehicles per hour (total both directions)
    3. Standard 2-lane highway, moderate side friction - 1,400 vehicles per hour (total both directions)

Total vehicle demand is based upon the number of vehicles in the area, assuming worst case conditions and the estimated percentage which would likely be used for evacuation purposes. Under these conditions, approximately 42,800 vehicles have been used to represent total vehicle demand for 1980.

The estimated vehicles in each analysis city were assigned to the principle evacuation routes based on geographic location and accessibility. It is conservatively assumed that all areas would be evacuated simultaneously.

The anticipated evacuation time for the 10-mile radius using the assumptions stated is five hours.